

the basilar process of the occipital bone into the cavity of the cranium; by this means a considerable part of the contents of the cranium were removed. Compression at this time by means of the forceps caused the cranium to collapse, and moderate traction delivered the head. The after-birth was removed by manual aid.

The patient had become exceedingly depressed, partly by the unfavourable prognostications of her numerous female friends, and partly by the long continuance of the labour. She soon, however, reacted, and got well almost without an unpleasant symptom.

1862. *May 7.* Dr. HUNT reported the following

Remarkable Case of the Co-existence of Tetanus and Paralysis.—R. C., a boy aged 16, was admitted into the Episcopal Hospital on the 12th of April, 1862. He had been injured in a rope factory by a machine which I personally inspected afterwards. It is a large wheel, some twelve feet in diameter, and eighteen inches broad at the circumference. The outer surface is studded very thickly with polished iron spikes, three and a half inches long, very sharp at the points, and about one-fourth of an inch thick at the base. In fact it is an immense circular comb, revolved by steam, and used for the purpose of disentangling and layering hemp.

While revolving, the machine requires a man and an adept to attend it; but in this case the proper personage was temporarily absent, and the boy, full of ambition, undertook the duty. He was caught, and after being torn by the points of the spikes, was fairly impaled by three of them entering his cranium. Luckily, some one near threw off the belt, and the wheel stopped, but so firmly was the boy fixed, that it took two men, one to support the body and the other to insert his fingers between the spikes, to draw him off. The person who acted in the latter capacity told me that the boy was perfectly conscious; did not think he was much hurt, and wished to walk home or to the hospital. His condition on admission was as follows: There were some eight or ten large lacerated wounds of the back of the *right* hand and arm, the integument being thrown off in flaps, exposing the tendons, muscles, and superficial vessels and nerves. These wounds reached as high as the elbow, and the distances between them corresponded with the rows of spikes. There was no fracture of the bones of the arm or laceration of the muscles. The next point of injury was the left malar bone, which was fractured by one of the spikes, and then the frontal and parietal bones appear to have been pierced. There were three punctured fractures of the *left* side of the cranium, two through the frontal bone and one through the parietal. One of the former was at the frontal protuberance, the other was an inch and a quarter from the first, and just within the temporal ridge. The puncture of the parietal bone was on a line half way between the other two, and a little more than an inch posterior to the coronal suture. We thus have a tripod of spikes indicated, upon which the boy was impaled.

There were no brain symptoms whatever at the time of admission. The reflected flaps of integument on the arm were returned and secured by sutures, and water dressings were applied to the head and face. This was on a Saturday. The boy did perfectly well until Monday, when there were intervals of delirium; but most of the time he was rational, although quiet and indisposed to talk. He continued thus until Wednesday, when hemiplegia of the *right* side came on. On Thursday the patient was reported to me as very much worse. I found him unable to speak; when he made

the attempt, he did nothing but mutter. He was, however, conscious, when aroused, his eye having an intelligent expression, not according with his inability to speak. On trying to open the mouth to protrude the tongue, I found that he could not use his jaws properly, and was not able to separate them more than half an inch. The inability was greater upon the *left* side than upon the right, the paralysis of which continued unchanged.

So preoccupied was my mind with the idea of compression that tetanus did not immediately occur to me. A consultation was ordered at 4 o'clock Thursday afternoon. On my way home, in thinking of the anomalies of the case, the question arose, "Has this boy tetanus and paralysis together, and is one condition influencing the other?" Drs. Kenderdine and R. P. Thomas met in consultation at the time proposed, when my suspicions were fully confirmed. Well marked trismus, the very characteristic risus sardonicus, and hard abdominal muscles, showed unmistakably the invasion of tetanus. At the same time the paralysis of the right side continued, and although perfect as to the arm, the patient once in a while moved the right leg, but apparently had no voluntary power over it. The rectum and bladder were also paralyzed, and from this time until the termination of the case, the feces and urine were discharged involuntarily. It was concluded not to trephine. The sutures were removed from the arm wounds, and warm water dressings applied. The patient was also given chloroform gtt. xx, fluid ext. of conium gtt. x, every two hours. Under this treatment he became much more quiet. On Friday the tetanus was most thoroughly confirmed, by a remarkable combination of empros and pleurothotonos, that is, while there was a forward bending, the body at the same time was arched towards the left, as though the paralyzed side had no power of resistance. Throughout Saturday the symptoms continued unchanged, but on Sunday the boy became entirely unconscious, and died on Monday morning, on the 10th day from the injury.

Post-mortem.—The three punctured fractures of the cranium—at the points before indicated—were as clean on the external surface of the bone as though made by a sharp cutting punch. No fissures radiated from them. Small rough fragments of the internal table projected inwards from the margins of the holes, at which they maintained their connection with the sound bone. One of these was at least a half inch in length, and was connected with the fracture of the frontal protuberance. The membranes and brain were lacerated at points corresponding with the fractures. The right anterior lobe was the seat of a large abscess, and this lobe was more lacerated than the middle one. There was no particular congestion or inflammation of the base and medulla. The spinal cord was not examined. The wounds of the arm appeared to be in good condition. An abscess had formed about the left knee joint. The other parts of the body were perfectly normal.

Remarks.—Had the tetanus here a peripheral or central origin? In "Curling on Tetanus," I find a table of 128 cases, of which 110 had the original wound on some part of the extremities, and 69 of these either in the hands or feet; 5 only had wounds of the head. The lacerated wounds of the arm in my case were of the very kinds that are supposed to be more fruitful of tetanus than others.

Did the two conditions of tetanus and paralysis have any influence on each other? Was there a cross action here of any kind? I find two cases which may be considered as having some bearing on these points. One in Curling: "A boy received two shots in the spine; immediate paralysis

of the parts below followed. In seven days tetanus came on in the form of opisthotonos. Laudanum was given, in drachm doses, every half hour during the night; and the next day, caustic potash was applied along the whole length of the spine. There was a mitigation of the paroxysms; the patient slept and awoke free from the tetanic symptoms, but the paralysis of the lower extremities and of the bladder remained. Sensation remained perfect."

In the case just reported both sensation and motion were affected.

In "Longmore on Gunshot Wounds," a case is spoken of thus: "M. Bandens extracted, with an elevator supplied with a canula, a ball which had lodged in the eleventh dorsal vertebra, and was causing compression and complete paraplegia. The paralysis disappeared immediately after the extraction of the bullet, but tetanus came on four days afterwards, and proved speedily fatal." In both these cases there was direct injury to the spine, and there must have been much more laceration of tissue than was made through the integuments of the scalp in my case. In fact the scalp can scarcely be said to have been lacerated, but rather perforated by the polished spikes.

With the case before us, we have then three cases in which paralysis and tetanus coexisted. Doubtless there are others, but I have not been able to find them.

Why, when the intelligence of this patient was good, was he unable to speak, but could only give utterance to moaning and guttural sounds? His tongue was not paralyzed. There was nothing the matter with the base of the brain. The hearing and sight appeared to be good; there was no strabismus. Patients with trismus—at least all I have seen—can speak, although low, yet perfectly distinct. Is the explanation to be found in the cerebral wounds interfering with the will and intellect? It was not owing to a stupefied condition that the patient did not speak, for it was two days before coma came on that he lost the power of articulating, and made his wants known by motions with his left hand and by his eyes.

Surgically, the case is of great interest. Should we have trephined this boy over the three fractures? Does not the post-mortem show that we should, in all probability, have added one more case to the long list which has almost abolished the trephine from the surgical armamentarium? The calvaria has been preserved, and is a rare specimen of punctured fracture, with depression of the internal table.¹

Nov. 5. *Colloid Cancer of the Omentum, Mesentery, &c.; Scirrhus of the Stomach and Uterus; Colloid of the Ovaries.*—Dr. LEVICK exhibited a specimen of cancer, and made the following remarks respecting it: Mrs. —, a lady aged 59, had carefully nursed her husband through a long and fatal illness. During this time, which extended over a period of four years, her health had been good for the most part, excepting some little discomfort after eating, which was attributed to dyspepsia. There was also at the same time a tendency to constipation of the bowels. To relieve these symptoms she took small doses of blue mass, but without any appreciable benefit. These symptoms gradually increased, but she was able to attend to her domestic duties, and to go out daily until the early part of August, 1862, when Dr. Levick was first called to see her. He found her in bed, suffering from pain in the abdomen, obstinate constipation, nausea and vomiting, the stomach rejecting almost everything taken into

¹ The specimen was exhibited.